

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P231592

Luminaire Tested: **S121-DR-LO-30-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231592
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33907)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121-DR-LO-30-X-0048-1-U-DD-4-W
Description: DEFINE 1 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1184.1 lumens
Efficiency: N/A
Efficacy: 87.1 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.42 / 1.49
Luminous Opening: Rectangular w/ Sides (W: 0.1' x L: 3.92' x H: 0.08')
CIE Type: Semi-Direct

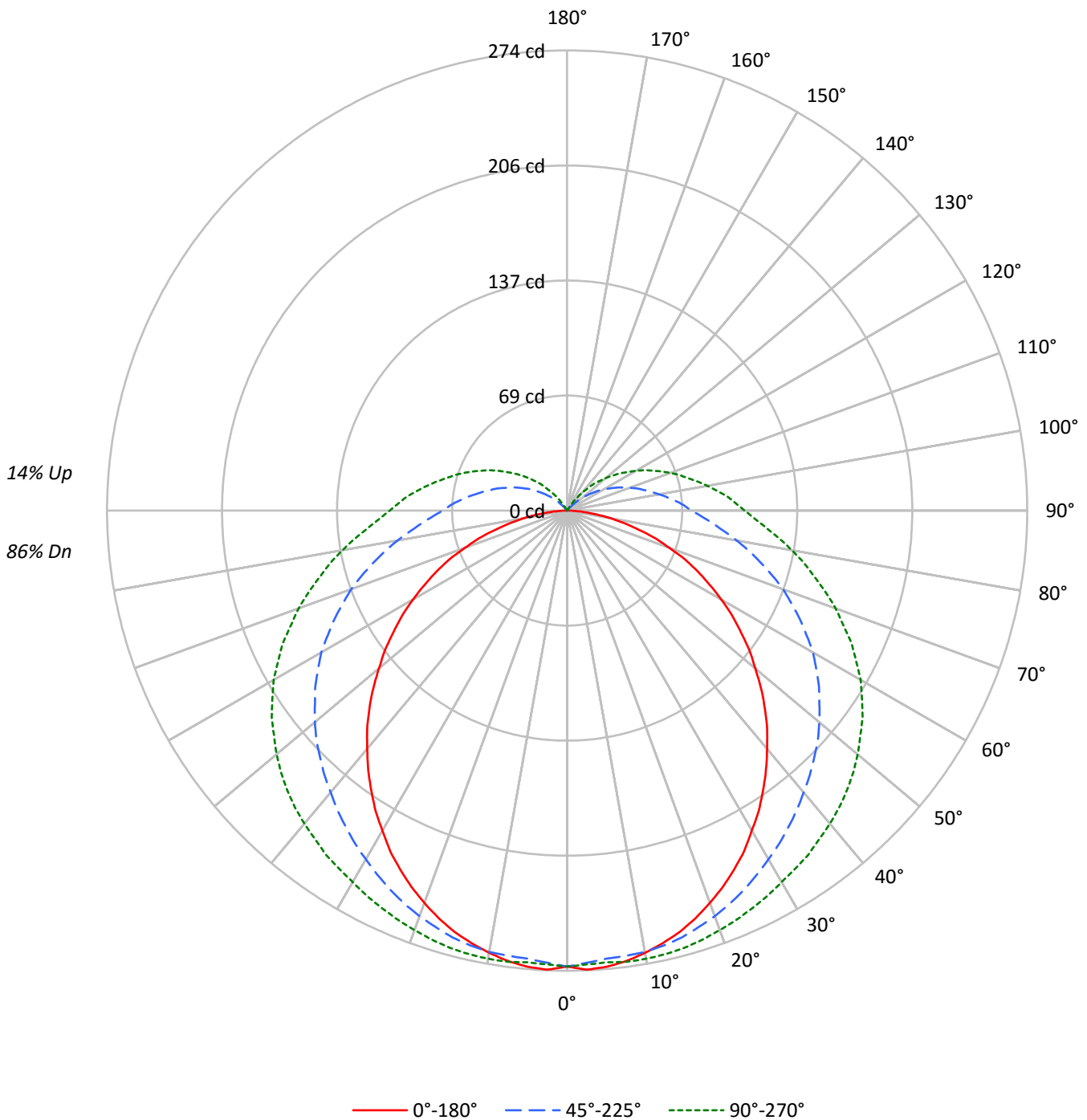
Input Watts (W): 13.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P231592

CATALOG NUMBER: S121-DR-LO-30-X-0048-1-U-DD-4-W

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	116	116	116	116	112	112	112	112	104	104	104	96	96	96	90	90	90	86
1	103	97	91	86	98	93	88	84	86	82	79	80	77	74	74	72	69	66
2	92	83	75	68	88	79	72	66	74	68	62	68	63	59	63	59	56	53
3	83	72	62	55	80	69	61	54	64	57	51	59	53	49	55	50	46	43
4	76	63	53	46	72	61	52	45	56	49	43	52	46	41	48	43	39	36
5	69	56	46	39	66	54	45	38	50	42	36	47	40	35	43	38	33	31
6	64	50	40	34	61	48	39	33	45	37	32	42	35	30	39	33	29	26
7	59	45	36	29	57	44	35	29	41	33	28	38	31	27	36	30	25	23
8	55	41	32	26	53	40	31	26	37	30	25	35	28	24	33	27	23	20
9	51	37	29	23	49	36	28	23	34	27	22	32	26	21	30	24	20	18
10	48	34	26	21	46	33	26	21	31	25	20	30	23	19	28	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	7590	7590	7590
5°	7636	7135	7054
10°	7563	6836	6693
15°	7471	6541	6357
20°	7339	6249	6044
25°	7196	5976	5773
30°	7016	5715	5536
35°	6840	5487	5359
40°	6641	5274	5192
45°	6446	5097	5042
50°	6202	4924	4886
55°	5979	4754	4737
60°	5722	4581	4572
65°	5428	4365	4384
70°	4981	4161	4178
75°	4423	3908	3955
80°	3735	3681	3766
85°	2555	3475	3575



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.7	2.2
10°-20°	74.6	6.3
20°-30°	115.0	9.7
30°-40°	143.3	12.1
40°-50°	158.4	13.4
50°-60°	158.9	13.4
60°-70°	144.3	12.2
70°-80°	117.2	9.9
80°-90°	85.8	7.2
90°-100°	62.6	5.3
100°-110°	44.8	3.8
110°-120°	29.3	2.5
120°-130°	16.4	1.4
130°-140°	6.8	0.6
140°-150°	1.1	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	215.3	18.2
0°-40°	358.6	30.3
0°-60°	675.8	57.1
0°-90°	1023.1	86.4
90°-120°	136.7	11.5
90°-150°	161.0	13.6
90°-180°	161.0	13.6
0°-180°	1184.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	272	272	272	272	272	
5°	273	271	268	270	270	26
15°	260	260	263	269	270	73
25°	236	241	249	259	261	108
35°	203	214	230	245	250	127
45°	166	183	208	229	236	128
55°	126	150	183	207	215	113
65°	86	116	153	178	187	85
75°	44	80	119	144	152	47
85°	10	48	87	111	119	12
90°	0	36	74	98	106	1
95°	0	28	65	88	96	0
105°	0	17	47	68	74	0
115°	0	7	32	50	56	0
125°	0	0	18	34	38	0
135°	0	0	6	18	22	0
145°	0	0	0	3	6	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



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CATALOG NUMBER: S121-DR-LO-30-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	271.5	271.5	271.5	271.5	271.5	271.5	271.5	271.5	271.5	271.5	271.5
2.5°	273.6	272.6	271.5	272.1	272.1	272.6	271.5	271.5	270.5	269.5	269.5
5°	272.6	271.5	270.0	270.5	270.5	271.0	270.5	270.0	268.9	267.9	268.4
7.5°	270.5	269.5	267.9	268.4	268.4	268.4	268.4	268.4	267.9	267.4	267.9
10°	267.4	266.3	265.3	265.3	265.3	266.3	266.3	266.9	266.9	266.9	267.9
12.5°	263.7	262.7	261.7	261.7	262.2	263.7	264.3	264.8	265.3	265.3	266.3
15°	259.6	258.0	257.0	258.0	258.5	260.6	261.7	262.2	262.7	263.2	264.8
17.5°	254.4	253.3	251.8	252.8	254.4	257.0	258.0	259.1	260.1	260.1	262.2
20°	248.6	247.6	246.0	248.1	250.2	252.3	253.8	254.9	255.9	257.0	259.1
22.5°	242.4	240.8	240.3	242.9	245.0	247.6	249.2	250.7	251.8	253.3	255.9
25°	235.6	234.1	234.1	236.7	239.3	241.9	244.0	246.0	247.1	249.2	251.8
27.5°	228.4	226.8	227.3	230.4	232.5	236.2	238.2	240.8	242.4	244.5	247.6
30°	220.0	218.5	219.5	223.2	226.3	229.9	232.5	234.6	237.2	239.8	243.4
32.5°	212.2	210.2	211.7	215.9	219.0	223.2	226.3	228.9	232.0	235.1	238.8
35°	203.4	201.8	203.9	208.1	211.7	215.9	219.5	222.6	226.3	229.9	234.1
37.5°	194.5	192.5	195.6	199.8	204.4	208.6	212.8	215.9	220.0	224.7	229.4
40°	185.2	183.6	187.3	191.9	196.1	200.8	205.5	209.1	214.3	219.0	224.2
42.5°	176.3	174.8	178.9	183.1	188.3	193.5	198.7	202.4	208.1	213.8	219.0
45°	166.5	165.4	169.6	174.8	180.5	186.2	190.9	196.1	202.4	208.1	213.8
47.5°	156.6	155.5	160.2	165.9	171.7	177.9	183.6	189.9	196.1	202.4	208.1
50°	146.2	146.2	151.4	157.1	162.8	170.1	175.8	183.1	189.3	196.1	201.8
52.5°	136.8	136.8	142.0	147.7	154.5	161.8	169.1	175.8	183.1	189.3	196.1
55°	126.4	127.4	133.2	138.9	145.7	153.5	161.3	168.5	176.3	183.1	189.3
57.5°	116.5	118.1	123.3	129.5	137.3	145.7	153.5	161.3	168.5	175.8	182.6
60°	106.1	108.2	113.9	120.7	128.5	137.3	145.7	153.5	161.3	169.1	175.3
62.5°	95.7	98.3	104.0	110.8	119.6	128.5	137.3	145.1	153.5	160.7	167.5
65°	85.8	88.4	94.2	101.4	110.8	120.2	129.0	137.3	145.7	152.9	160.2
67.5°	75.9	78.5	84.8	92.6	102.0	111.3	120.2	129.0	137.3	144.6	151.4
70°	64.5	68.7	74.9	83.2	93.1	102.5	111.8	120.2	128.5	136.8	143.6
72.5°	55.1	58.8	65.5	74.4	83.7	93.6	103.0	111.8	120.2	128.0	134.7
75°	44.2	48.4	55.7	65.0	74.9	84.8	94.2	103.0	111.3	119.1	126.4
77.5°	34.9	39.0	46.8	56.2	66.1	75.9	85.8	94.7	103.0	110.8	117.6
80°	26.0	30.2	38.5	47.9	58.3	68.1	77.5	86.4	94.7	102.5	109.2
82.5°	17.7	21.8	30.7	40.1	49.9	59.8	69.2	78.0	86.4	94.2	101.4
85°	9.9	15.1	23.4	32.8	42.7	52.5	61.9	71.3	79.1	86.9	94.2
87.5°	4.2	9.9	17.7	26.5	36.4	46.3	55.7	64.0	72.8	80.1	86.9
90°	0.0	5.2	12.5	21.3	31.2	40.6	49.9	58.3	66.6	73.9	80.6
92.5°	0.0	3.1	9.9	18.2	27.6	36.9	45.8	54.6	62.4	69.7	76.5
95°	0.0	1.6	7.3	15.6	23.9	32.8	41.6	49.9	57.7	65.0	71.3
97.5°	0.0	0.5	5.7	12.5	20.8	29.7	38.0	46.3	53.6	60.3	66.6
100°	0.0	0.0	4.2	10.4	18.2	26.0	34.3	42.1	49.4	55.7	61.9
102.5°	0.0	0.0	2.1	8.3	15.6	22.9	30.7	38.0	45.3	51.5	57.7
105°	0.0	0.0	1.0	6.2	13.0	20.3	27.6	34.3	41.1	47.3	53.6
107.5°	0.0	0.0	0.0	4.2	10.4	17.2	24.4	31.2	38.0	43.7	48.9
110°	0.0	0.0	0.0	2.6	8.3	14.6	21.3	27.6	33.8	39.5	45.3



TEST NUMBER: P231592

CATALOG NUMBER: S121-DR-LO-30-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	0.0	0.0	0.0	1.0	6.2	12.0	18.2	24.4	30.2	35.9	41.1
115°	0.0	0.0	0.0	0.0	4.2	9.4	15.6	21.3	27.0	32.3	37.5
117.5°	0.0	0.0	0.0	0.0	2.1	7.3	12.5	18.2	23.4	28.6	33.3
120°	0.0	0.0	0.0	0.0	0.5	5.2	9.9	15.6	20.3	25.5	29.7
122.5°	0.0	0.0	0.0	0.0	0.0	2.6	7.3	12.5	17.2	21.8	26.0
125°	0.0	0.0	0.0	0.0	0.0	1.0	5.2	9.4	14.0	18.2	22.9
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	2.6	6.8	10.9	15.1	19.2
130°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	4.2	8.3	12.0	15.6
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	5.2	8.8	12.0
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.6	5.7	8.8
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.1	5.7
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	3.1
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P231592

CATALOG NUMBER: S121-DR-LO-30-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	271.5	271.5	271.5	271.5	271.5	271.5	271.5	271.5
2.5°	270.5	271.0	271.5	271.0	271.0	271.5	271.0	270.5
5°	269.5	270.0	270.5	270.5	271.0	271.0	270.5	270.0
7.5°	269.5	270.5	271.0	271.5	271.5	272.1	271.5	271.0
10°	269.5	270.0	271.0	271.5	271.5	272.1	271.5	271.0
12.5°	268.4	269.5	270.5	270.5	271.0	271.5	271.0	270.5
15°	266.3	267.4	268.9	269.5	270.0	270.0	269.5	269.5
17.5°	264.3	265.3	266.9	267.4	267.9	268.4	267.9	267.9
20°	261.1	262.7	264.3	265.3	265.8	266.3	266.3	265.8
22.5°	258.0	260.1	261.7	262.2	263.2	264.3	263.7	263.7
25°	254.4	256.5	258.5	259.6	260.6	261.7	261.1	261.1
27.5°	250.7	252.8	254.9	256.5	258.0	258.5	258.5	258.5
30°	246.0	249.2	251.2	252.8	254.4	255.4	255.4	255.4
32.5°	241.9	245.0	247.6	249.2	251.2	252.3	252.8	252.8
35°	237.7	240.8	244.0	246.0	248.1	249.7	249.7	250.2
37.5°	233.0	237.2	240.3	242.9	245.0	246.6	247.1	246.6
40°	228.9	233.0	236.2	239.3	241.4	242.9	243.4	243.4
42.5°	223.7	228.4	232.0	235.1	237.7	239.3	239.8	239.8
45°	219.0	223.7	227.8	231.0	233.0	234.6	235.6	235.6
47.5°	213.8	218.5	222.1	225.8	228.4	229.9	230.4	231.0
50°	208.1	212.8	216.4	220.6	223.2	224.7	225.2	225.8
52.5°	201.8	206.5	211.2	214.8	217.4	219.5	220.0	220.0
55°	195.6	200.3	205.0	208.6	211.7	213.3	214.3	214.8
57.5°	188.3	193.5	198.2	202.4	205.0	207.0	208.1	208.1
60°	181.5	186.7	191.4	195.6	198.2	200.3	200.8	201.8
62.5°	173.7	178.9	184.1	187.8	190.4	192.5	193.5	194.0
65°	165.9	171.7	176.9	180.0	182.6	185.2	186.2	186.7
67.5°	157.6	163.3	168.0	172.2	174.3	176.9	177.9	177.9
70°	149.8	155.5	159.7	163.3	166.5	168.5	169.6	170.1
72.5°	141.5	146.7	151.4	155.0	157.6	159.7	161.3	161.3
75°	132.1	137.8	142.5	146.2	149.3	151.4	152.4	152.4
77.5°	124.3	129.5	133.7	137.8	141.0	143.1	144.1	144.6
80°	115.5	120.7	125.4	129.0	132.1	134.2	135.2	135.8
82.5°	107.7	112.9	117.0	121.2	123.8	125.9	126.9	127.4
85°	99.9	105.1	109.8	112.9	116.0	117.6	119.1	119.1
87.5°	93.1	97.8	102.5	105.6	108.7	110.8	111.8	111.8
90°	86.4	91.6	95.7	99.9	102.5	104.6	105.1	105.6
92.5°	81.7	86.9	91.0	94.7	97.3	98.8	100.4	100.4
95°	77.0	81.7	86.4	89.5	92.1	94.2	95.2	95.7
97.5°	72.3	77.0	81.1	84.3	86.9	89.0	89.5	90.0
100°	67.6	72.3	75.9	79.1	81.7	83.2	84.8	84.8
102.5°	62.9	67.6	71.3	74.4	77.0	78.5	79.6	79.6
105°	58.3	62.9	66.6	69.7	71.8	73.9	74.4	74.4
107.5°	54.1	58.8	62.4	65.0	67.1	69.2	70.2	70.2
110°	49.9	54.1	57.7	60.3	62.9	64.5	65.5	65.5



TEST NUMBER: P231592

CATALOG NUMBER: S121-DR-LO-30-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	45.8	49.9	53.6	56.2	58.3	59.8	60.9	60.9
115°	41.6	45.8	48.9	52.0	54.1	55.7	56.2	56.2
117.5°	38.0	41.6	44.7	47.3	49.4	51.0	52.0	52.0
120°	33.8	37.5	40.6	43.2	45.3	46.3	47.3	47.3
122.5°	30.2	33.3	36.4	39.0	40.6	42.1	43.2	42.7
125°	26.5	29.7	32.3	34.9	36.4	38.0	38.5	38.5
127.5°	22.4	25.5	28.6	30.7	32.3	33.8	34.3	34.3
130°	18.7	21.8	24.4	26.5	28.1	29.1	30.2	30.2
132.5°	15.6	18.2	20.8	22.4	23.9	25.0	26.0	26.0
135°	12.0	14.6	16.6	18.7	20.3	21.3	21.8	22.4
137.5°	8.3	10.9	13.0	15.1	16.1	17.2	17.7	17.7
140°	5.2	7.3	9.4	10.9	12.0	13.0	13.5	14.0
142.5°	2.1	4.2	5.7	7.3	8.3	8.8	9.4	9.4
145°	0.0	1.0	2.6	3.6	4.7	5.7	5.7	6.2
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)